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ABSTRACT

Capital outlay for school facilities is receiving interest as focus is turned toward all facets of education, including the condition of the physical learning environment. Recent court decisions have brought about some equity in school financing, but the potential exists for future lawsuits for equity in educational facilities. There is a concern in the research literature for construction, maintenance, renovation, and similar capital outlay issues. Several studies conducted in Kansas suggest that state school districts are confronted with facility finance problems. The age and condition of facilities suggest continued and increasing maintenance and replacement costs. Kansas districts will continue to face obvious facility needs and inequalities. Conclusions of the study include: (1) methods of funding capital outlay need to be changed; (2) neither rural nor urban school districts have a distinct advantage in facility funding; (3) there exists an inaccurate assumption that rural areas are wealthier than the urban areas; (4) rural and urban districts have different circumstances but similar problems; (5) the size of the capital outlay problem in Kansas is growing due to the age of the facilities and the deferral of maintenance and improvement; (6) tax rates, local economic health, and adequacy of the tax base determine the ability to bond for construction; (7) ability to finance facilities varies from district to district; (8) a majority of Kansas districts are unable to fund either the mean ability level or the mean expenditure level; and (9) the impact of facilities on educational programs must be a central concern in the assessment of equity. Suggestions for funding and state aid mechanisms are given. Contains 30 references, and 10 tables outlining research data. (ALL)

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CAPITAL OUTLAY AS AN ISSUE OF EQUITABLE CONCERN

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Introduction

Educational policymakers have reason to be concerned with capital outlay financing. Although school finance observers have frequently spoken out regarding the potential impact of capital outlay financing on the economic balance of school tax structures, the topic has received more avoidance than attention. In fact, a discussion of capital outlay funding and potential state participation is likely to evoke strong emotions and responses.

Financing the nation's schools appears to be an insurmountable problem. Property tax concerns and a growing unwillingness among patrons to support tax increases constitute an increasingly serious threat to the integrity of educational systems in America. Increasingly, tax reform initiatives place pressure on school officials, board members, and legislators who must be sensitive to patrons while accepting the legal and moral responsibility of their respective offices.

Concern for equity in school finance is not a recent phenomenon. Reform interest escalated to historic proportions during the 1960s and 1970s. Many court decisions ruled state systems for financing education unconstitutional because of extreme variations in wealth. The Serrano v Priest (1971) decision in California with its emphasis on statewide equality of educational opportunity sparked an impetus for the reform movement, causing realignment of many state systems for financing education.

Although the lawsuits brought funding mechanisms in line with court requirements, many basic equity concerns were resolved; but states found artificial mechanisms which adjusted for inequities that occur naturally within tax base distributions. As a consequence of increased fiscal support, the furor over finance formulas and equity concerns diminished.

A resurgence of interest for equity in finance is becoming evident once again. Several states are facing new court challenges to their present systems of financing schools. Some of the interest is no doubt related to the economic climate of the states. As long as revenues are plentiful, society is relatively slow to challenge

traditional methods of financing schools. As economic difficulties increase, the likelihood of challenges also increases. One thing is certain; the legacy of aggressive litigation has provided fruitful promise for court challenges to state finance schemes.

Interest has recently begun to turn toward a better understanding of how school finance mechanisms and instructional programs are dependent upon each other (Childs and Shakeshaft, 1986). The focus is turning toward the integrated and interactive nature of all facets of education. Just as there are concerns about teacher quality, instructional resources, and other achievement variables, there is a concern that equality of opportunity may be affected by bricks and mortar. As knowledge of effective schools, effective principals, and effective teachers improves, we are called to explore the interaction of facilities and educational programs (Odden, 1986). As we move from the 1980s into the next decade, several indicators suggest that methods for financing facilities may receive new emphasis in the search for understanding of how opportunity and finance are interdependent. These indicators are seen in a quietly growing body of court comments about facilities and in an increasing body of research literature which examines equity in facility financing. These barometers suggest that a deeper examination is in order.

The Key Issue

This presentation addresses several concerns surrounding facility finance. The purpose of reviewing capital outlay financing is to place in perspective some sense of the emergence of the concern, to provide a guiding synthesis of existing research, to add through new research to the body of knowledge, and to speculate on how the issue may affect the rural and urban areas of the state of Kansas and the state as a whole.

The concerns and issues surrounding financing facilities are thus succinctly stated:

* What are the sources of concern, and what are the legal issues
  surrounding the potentially troublesome issues?

* How are other states addressing the issue, and can we gain insight
  into the problem by observing their involvement?

* What are the dimensions and effects of the problem in Kansas?

* Are there differences between rural and urban areas of the state, or
is the problem generic to the entire state?

* Is there an association between educational facilities and the quality
of educational programs?

Answers to these questions are not clearly evident. Studies have found that most school district superintendents hold a high level of awareness and concern for financing facilities (Jolley, 1983). Similar evidence exists in Kansas (Thompson et al, 1988), but the evidence also suggests that superintendents are slow to embrace state involvement. There appears to be strong resistance to extension of state support to facilities despite the fact that some needs are going unmet as a consequence of extreme dependence on local wealth for funding school facilities (Bogie, 1986).

Historical Antecedents

Historically, facility financing has been a low priority. Several causes for state inaction have been surmised. Chief among the reasons has been tradition. Prior to 1900, education was a uniquely community-based event. A smaller percentage of children attended school, and building costs and programs were simpler. School buildings were such local possessions raised by volunteer labor, materials and land. Obsolescence was nearly nonexistent, and the demands of on the tax base for competing governmental services were minimal (Burrup, 1982).

The years after the turn of the twentieth century saw the advent of bonding. School needs increased faster than their ability to pay with cash, and issues of tax base adequacy emerged. In the new economy, assessed valuation of property and location of power plants, oil and gas facilities, railroads and other industries became critical to the local community's educational funding program (Thomas, 1978; Salmon et al, 1981).

Despite a low priority for funding facilities, a number of states have experimented with aid to construction and have adopted plans providing for state participation as school building needs increased dramatically after World Wars I and II and following the Depression. These devastating events had nearly halted facility construction,

resulting in a severe backlog of needs. Additionally, increasing costs, new curricular programs, and mobility removed education from the closely-knit communities.

History of State Involvement in Financing Facilities

State involvement provides a checkered history. At various times the effort has been enthusiastic, but at other times denial of responsibility has been evident. In general, there has been less than enthusiastic support among the states for the concept of state participation in school building costs. States have given the same impression regarding facility reform that surrounded school general finance reforms as states waited until forced to reorder funding formulas. But despite the slowness, there has been movement toward state involvement. Presently 28 states provide some form of true grant-in-aid assistance to local school districts.

The question of legal responsibility for state participation in school building costs is the basis for this policy analysis. Presently 22 states offer no assistance in the form of equalization to capital outlay. These states may potentially be targets for claims of unequal educational opportunity.

Principles of General Finance Equity

Recognizing the timeliness of the issue is related to the responsibility for financing education. The Tenth Amendment delegates all powers to the states which are not specifically reserved to the federal government. As the federal constitution is silent on education, the responsibility for providing a system of schools falls to the individual states.

After Rodriguez, equity cases were filed in state courts seeking protection under individual state constitutions. The logic was simply that if federal protection was denied, then protection under the individual states' constitutions might prove to be a means to force states to substantially equalize educational expenditures. In many instances, the tactic proved effective. The language of many state constitutions was construed by the courts to deem education to be a fundamental right.

After Rodriguez, the court filings began to increase. Of the equity suits, Serrano (1971; 1976) in California had the widest impact. Of greatest interest was the court's decision in Serrano that variations in local wealth were ultimately related to educational opportunity. The court

ruled that variations in wealth were violative of equity standards and noted that equity requires education to be a function of the wealth of the state as a whole. The court also indicated that failure by the state to correct extreme variations in ability of local districts to sufficiently provide funds for education represented an abdication of the state's constitutional requirement to establish an adequate system of schools.

Following Serrano, many states realigned their finance formulas under the presumption that if challenged, their own system for funding schools would be declared unconstitutional. There was a common assumption in the new finance formulas that equalization principles applied only to general fund expenditures. The accuracy of that assumption is being questioned, and there are indicators which suggest that the assumption may have been erroneous. A quietly growing body of court decisions intimates that there are other areas to which equity should be applied, among which is facility financing.

Court Decisions Involving Capital Outlay

For the past 15 years, courts have commented on how local districts provide funding for school buildings. The Serrano (1971) decision and its subsequent review in Serrano II (1976) established the responsibility of the state for providing an adequate educational system regardless of local wealth. Direct reference to capital outlay has been made in numerous court cases, and the effect of principles of general equity upon capital outlay funding may be hypothesized:

Shofstall v Hollins (1973) in Arizona: funds for capital improvements were more closely tied to district wealth than funds for operating expenses and that the capacity of a school district to raise revenue by bond issue is a function of assessed valuation.

Robinson v Cahill (1973) in New Jersey: the state's obligation included capital expenditures, without which required educational opportunity could not be provided.

Serrano II (1976) in California: deferred maintenance funds were required to satisfy the court.

Board of Education of the City of Cincinnati v Walter (1977): a thorough and efficient system of schools is not met if any schools are starved for funds, teachers, buildings, or equipment.

Diaz v Colorado State Board of Education (1977): some districts were better able to provide facilities.

Lujan v Colorado State Board of Education (1982): the fiscal capacity of school districts to raise revenue for bond redemption and capital reserve was a function of property wealth.

Christiensen v Graham (1988) in Florida: although the Florida court ruled in summary judgment that the state system for financing education did not violate equal opportunity, it is important to note that Florida is among those states which has held national prominence as a leader in assisting facility financing.

Helena Elementary School District et al v State of Montana et al (1988): the court specifically noted that the ability of school districts to raise funds for capital outlay was dependent on local tax levy, noting that the absence of state aid to capital outlay created a wealth dependency in Montana's school finance system.

Edgewood Independent School District v Kirby (1987): ensuing court order to correct conditions included remedies and noted that funds for school facilities would be required to satisfy the court. According to the decision, the legislature would be required to take action that would guarantee adequate funding for educational expenditures.

The West Virginia case of Pauley v Bailey (1982) offers the best analysis of the potential breadth of the concern for financing school buildings (Thompson, 1987; 1985). Originally filed as Pauley v Kelly (1972) as a broad concern for inaccessibility to a quality education, the focus in Pauley became for the first time in history a direct concern for equal opportunity as defined by adequate school buildings. Originally dismissed, the lower court's ruling was reversed by the West Virginia Supreme Court. The court saw a primary flaw in the state's reliance on local property tax for providing quality education which was extensively defined as including school facilities.

Still other cases are under review or presently being filed which impact directly or peripherally on capital outlay funding:

Kenai Peninsula Burrough and Jerry Anderson v State of Alaska and Matanuska-Susitna Burrough v State of Alaska: scheduled for trial in 1988. In Hootch v Alaska State Operated School System (1975), general equity claims sought to force the state to build schools in outlying communities

to reduce boarding schools. The state agreed to build rural schools and reimburse both rural and urban communities for debt retirement in order to avoid continued litigation. Reimbursement levels varied with the condition of the economy, and the net result was differing levels of reimbursement to rural and urban districts. The present cases were filed in protest of unequal protection.

Abbott v Burke (1985) New Jersey: includes provisions for relief on funding facilities. This case is an ongoing review of Robinson v Cahill from 1973.

Jenkins v State of Missouri (1987): facility financing appears to play an important part. The Kansas City, Missouri case promises to keep the issues of facility finance in turmoil, as funding for school buildings appears destined to play an important part in both the court's decision and any appeal process.

Finally, leading cases which cite the importance of capital outlay in state support mechanisms are presently on appeal in Florida, Texas, and West Virginia. The decision in Florida in Christiensen v Graham (1988) is on appeal. Edgewood v Kirby is being appealed by the state, the West Virginia case is back in court as Pauley v Gainer (1987), and the Jenkins case in Missouri is a virtual certainty for appeal. The eventual outcome of Pauley, Kirby, and Jenkins, and other pending cases will be of critical importance to equity trends in school finance.

THE FACILITY DILEMMA IN KANSAS

There is a concern in the research literature for construction, maintenance, renovation and similar capital outlay issues. While components and features of problems are unique to individual states and the studies too numerous to review individually, there are commonalities among several studies which are helpful in assessing the extent of the issue. Several of the studies have occurred in Kansas, which with its myriad rural and urban school districts, is no exception.

Five areas of research are reported on here. A logical division of (1) rural and small schools in Kansas emphasis (2) larger districts in Kansas emphasis (3) mixed district size in Kansas (4) a national view of rural schools and (5) the present study provide a clear sense of the problems and issues.

Representative Schools Research

In 1985, Honeyman and Stewart survey Kansas school districts of less than 1,000 students. The survey encompassed 223 of the state's 304 districts. The objective of the research was to identify variables which influence a district's ability to generate maintenance funds.

The results of the survey indicated a backlog of needs referred to as deferred maintenance, estimated to total $60 million. Districts suffered from common problems involving inability to fund roof repair, HVAC systems, window/energy related measures, and "...generally needed renovation and modernization." Data collected on fiscal variables in the districts were correlated with reported levels of deferred maintenance, with coefficients indicating suspect relationships. Levels of debt was found positively related to high levels of deferred maintenance (r= 0.63), amount budgeted for capital outlay (r= 0.21), transfers to capital outlay accounts (r= 0.23), and the level of debt service (r= 0.50). Multiple regression analysis indicated that the level of outstanding debt was the single best predictor of deferred maintenance where approximately 37 percent of variance was explained. The researchers concluded that local wealth contributed significantly to decisions to proceed or defer needed maintenance projects.

A survey of districts with greater than 1,000 student enrollment in Kansas yielded similar results. Devin (1985) studied 81 districts, finding a backlog of $321 million where needs were noted for roofs ($16 million), HVAC ($13.3 million), new construction ($241 million), and driveways/parking ($5.2 million). Devin noted the causes of deferred maintenance, citing building age (78.1%), health/safety (75.3%), technological/curricular (68.6%), energy (15.3%), tax limitations (72.6%), and demographics (56.2%). Correlational data similarly indicated positive suspect relationships. Devin concluded that districts receiving higher state aid also held the highest unmet needs for facility repair.

Random sample research in Kansas districts similarly found high positive relationships between wealth and facility condition. Burk (1987) found deferred maintenance positively correlated to assessed valuation (r= 0.58), taxable income (r= 0.72), enrollment (r= 0.63), and general fund tax rate (r= 0.19). Multiple linear regression noted that assessed valuation, taxable income, and enrollment explained 62.18 percent of variance, with income as the single best predictor of distress with 51.63 percent of observed variance.

National research efforts yield the same dilemma. A recent study sponsored by National Rural Education Association, Kansas State Center for Extended Services and the Center for Rural and Small Schools, and the university's Bureau of General Research yielded national figures of $300,000 deferred maintenance per building, a national total of $2.6 billion in actual deferred dollars, and an $18 billion need to replace/renovate buildings nearing the end of expected utility. Again, positive correlations with wealth and condition were noted, with the researchers concluding that the higher the wealth, the lower the need, with utilization of the bonding mechanism being the single best predictor for financial difficulty in maintaining facilities.

The Present Research

The present research is different by analyzing the total population of 304 Kansas school districts and by comparing urban and rural districts. Superintendents were asked to respond to a series of questions related to tax base size and type, general fund budget, capital outlay budgets, mill rates for general fund and capital outlay, bonded indebtedness, and dollars budgeted for planned improvements. Superintendents also responded to questions regarding recent bond election success or failure, plans to conduct bond elections, the adequacy of present facilities including plans for major renovation and construction, and potential closing of facilities based on enrollment projections. A 98 percent total response rate was experienced. For the few nonresponding districts, necessary financial information was derived from state department documents. As the intent of the study was exploratory in order to determine the magnitude of need and the relationship of suspect variables, the research design was limited to measures of description, distribution, central tendency and variation, and correlation between variables. Four statistical measures were utilized to obtain a panoramic view of the state and the rural and urban subgroups. Measures included were: (1) unrestricted range (2) restricted range (3) federal range ratio and (4) Pearson correlation coefficients.

In FY 1986-87, the number of pupils enrolled in the public school systems in Kansas totalled 394,777.4 FTE. Students were housed in 892 elementary schools, 209 variously defined junior high schools, and 356 high schools. Grade arrangements by building in the state caused variations in the several classifications, with the most common grade arrangement being 128 districts identifying a K8-4 pattern, 54 districts reporting K6-6, and the remaining

districts reporting other organizational characteristics, with the least common grade arrangement being a K-12 pattern reported by only five school districts.

The subdivisions of rural and urban populations and organizational patterns produced no surprises, and the following conclusions can easily be drawn. The number of school buildings in the state consistently reflects the expected rural and urban economies of scale where proportionately more buildings educate correspondingly fewer students. The organizational patterns bear out the size of Kansas communities as well. Rural districts are able to support fewer but broader organizational forms as typified by the K-8 structure.

The age and condition of buildings across the state provide a basis for analysis and comparison between rural and urban districts. Districts reported that there were 131 buildings ranging from 0-10 years, 187 buildings aged 10-20 years, 696 buildings whose age fell between 20-50 years, and 253 buildings more than 50 years old. Subgroupings for rural and urban indicate the age of buildings fairly evenly distributed across the two subgroups with no particular group outstripping the other. Additionally, superintendents were asked to rate the condition of buildings. Results of the rating indicated that superintendents assessed 67 buildings as being new or in new condition, 900 assessed as good condition, 209 buildings in fair condition, and 66 buildings in poor condition. The rural and urban subgroupings revealed that 29 percent of rural schools were rated in fair to poor condition, while only 7.1 percent of the urban schools were similarly rated.

Financial data on the districts offered a revealing look at the fiscal base of Kansas school districts. The state contributed approximately $435,209,307 in aid to general fund budgets in Kansas school districts. The mean aid level was 33.77 percent. Thirty-seven districts in Kansas received no state aid and represented 12.2 percent of the distribution, and the highest level of state aid to a school district was 80 percent. The sum of all general fund budgets for the fiscal year 1986-87 reached $1,288,503,382. The sum of Kansas unadjusted assessed valuations was $11,201,043,673, and general fund mill rates ranged from 6.13 mills to 91.33 mills. The mean and median mill rates were nearly indistinguishable with the mean established at 51.24 and the median at 51.33 mills.

Not surprisingly, the data indicate the rural nature of the state's tax base. A 58.5 percent majority reported primary reliance on agricultural pursuits for tax revenues.

An additional 4.9 percent indicated primary reliance on industry, and 8.2 percent reported urban settings as the source for tax revenue. An additional 17 percent identified a mixture of revenue sources with no single predominant feature, and the remaining 11.4 percent identified other sources of revenue primarily related to energy production.

Descriptive data regarding capital outlay levies and related information indicate that despite the average age of buildings in the state, a majority of school districts have found it necessary to levy for capital outlay and have accumulated bonded indebtedness which is being serviced by the local tax base. The subgroupings of rural and urban districts show that urban districts are levying more frequently for both capital outlay and debt retirement, but a majority in both groups is levying for capital outlay and debt reduction.

Data also indicate the extent to which Kansas school districts are committed to facility obligations under bonding capacity and foreseeable plans to engage in facilities alteration, expansion, or use reduction. Total bonded indebtedness for the state reaches $384,875,687 with 129 districts reporting no bonded indebtedness. Superintendents also reported the intent to spend $67,626,299 in FY 1986-87 for capital improvements. Nearly half of all districts who responded to the survey planned to conduct facilities projects, and 20 percent reported plans to hold a bond election. Fully 10 percent of districts reporting indicated bond election failures within the past five years. An additional 21.2 percent of districts reported plans to close buildings or severely curtail use in the next ten years.

The descriptive profile of the state is thus typically rural, with numerous school districts whose buildings are approaching middle age and in reasonably good condition, although a sizeable number of districts report needs amounting to large sums of money. The financial data reflect considerable fiscal conservatism with a fairly high degree of local self sufficiency indicated by average levels of state aid. Wealth per pupil appears higher in rural communities with below median state aid and mill rates. Of the zero aid districts in the state, the majority are located in rural areas.

Capital outlay data suggest the same conservative profile. Fewer rural districts levy for capital outlay and fewer levy for debt. Revenue capacity for capital outlay is greater for rural schools. District plans for debt and capital outlay projects noted that nearly half of districts

planned significant projects in the upcoming year. But despite optimistic plans of 20 percent of districts to hold a bond election, 10 percent of districts had lost elections within the last five years. This picture is complicated by a large group (21.2%) planning to close or curtail facilities in the near future. Hence the profile appears to be greater wealth in rural districts, an overall reluctance to enter into debt, but a recognition that the need exists to begin projects with a significant group needing to issue bonds for projects.

While the first phase of the project constructed a profile of the state, the second phase focused on the equity analysis of ability. Measures of distribution, central tendency, and variation were utilized to compare to the apparent picture constructed by the general profile.

The unrestricted range is a raw score measure identifying the limits of a distribution. Unrestricted range measures looked at the revenue produced in each school district by assessed valuation times a uniform four mills. The lower limit is subtracted from the upper limit, and the resulting expression is the unrestricted range of scores or ability of the district to raise revenue. This measure was calculated for each of the class subgroups of rural and urban and for the state. As the difference in unrestricted range decreases, the degree of equity is assumed to increase. Again, under unrestricted range, rural districts possess the wealth of the state.

The restricted range utilizes the same procedure, except that it eliminates extreme scores in order to determine the range. The logic for a restricted range measure is that it is useful in viewing the effect of extremely high and low districts (outliers) and results in a less distorted view of the majority of the group. The restricted range is calculated as (Restricted Range= X_{95} - X_5). Scores were again arrayed. As the size of the range increases, the assumption of inequity also increases. The restricted range again consistently notes wealth lying in rural areas.

The federal range ratio is a wealth neutrality measure utilized to determine eligibility of groups for certain monies for which fiscal neutrality is required. Like the unrestricted and restricted range, the federal range ratio assesses the width of the distribution and further expresses it as a single numeric value. The federal range ratio is based on the restricted range and is calculated by [Federal range ratio= $(X_{95} - X_5)/X_5$]. Ideally, the federal range ratio should equal zero. Again as the numeric value

increases, the degree of difference among districts also increases. The data indicate that rural districts hold greater wealth than urban districts, but also that wealth differences between rural districts is greater than in urban districts, indicating the presence of poor rural districts as well.

At the state level, the ability of districts under a uniform four mill levy shows ability in the highest wealth district to be 190 times greater than the lowest district for a net difference of $2,368.30 per pupil. When the restricted range is utilized, the high wealth district can still raise $455.60 more per FTE. Similarly, the Federal Range Ratio yields a high value of 9.6, indicating the presence of wide variance of ability in the restricted range.

When analyzing rural and urban unrestricted range ratios, it becomes apparent that the extremes of both wealth and inability are present among rural schools and that urban districts are much closer to one another in relative ability. The unrestricted range for urban districts shows that the wealthiest urban district can raise 23.2 times as much revenue per FTE for capital outlay as can the poorest urban district. The ratio of 23:1 for urban districts represents a wide difference, but is much narrower when it is compared to the 190:1 ratio that is present in rural districts. The restricted range indicates the same results, showing that the ability difference among urban districts is $101.70 per FTE compared to $477.20 for rural districts. The extreme variations in wealth among rural districts appears to control the statewide restricted range, and denies the obvious conclusion that all rural districts are wealthy.

Similar support for the wide variations of wealth exists when comparing rural and urban districts using the federal range ratio (FRR). Whereas the FRR for urban districts is set at 3.6, the FRR for the state stands at 9.6 and for rural schools is 9.5. As the FRR is based on the restricted range, this statistic indicates again that extreme differences of wealth exist across the state even after the top and bottom districts have been removed from the distribution. The disparity is evident in urban districts, but the range is much wider among rural districts.

What is clear from the data is that a wide range of both restricted and unrestricted ability exists within the assessed valuations of districts, that the range of ability among urban districts is much less than the range among

rural districts, that rural districts for whatever reason spend more than twice the mean capital outlay expenditure, and that the rural districts occupy both extremes of wealth in the total distribution, making conclusions regarding excessive wealth among rural districts somewhat difficult to substantiate.

Correlational Data

The final statistical measure utilized correlation procedure. It is assumed that various conditions are interrelated in some fashion; the question becomes which conditions are dependent on other conditions. The Pearson was used to correlate the degree of association between two variables. A total of 32 Pearson correlation coefficients were utilized to assess relationships.

The Pearson correlation coefficient explores relationships among variables. Results of the correlations among the 32 variables are found in Tables 4.9 and 4.10. Table 4.9 displays the correlational values for the variables found to hold statistical significance.

Correlations obtained were of varying degrees of strength. The strongest positive correlations were found for:

1. Capital outlay ability to district wealth	1.0000
2. FTE to planned improvements	.6397
3. Wealth to planned improvements	.6333
4. Condition of facilities to age	.5980
5. FTE to level of bonded indebtedness	.3800
6. Wealth to level of bonded indebtedness	.3034
7. Planned improvements to level of debt	.2641

The correlation between capital outlay and district wealth yielded a perfect positive relationship. The dependent relationship between wealth and ability is the concern expressed in the research reviewed earlier because the ability of the local school district to provide facilities depends entirely on local property wealth.

The correlation between FTE and planned improvements yielded a value of .6397. The correlation addresses perceived needs in the district as they relate to the size of the district. As the enrollment increases, need for new and updated facilities correspondingly increases. Inversely, in districts where enrollments are stable or declining, there is little evidence to suggest that maintenance needs or obsolescence of existing facilities correspondingly decline; in fact, with time they usually intensify. Other correlations to enrollment also yielded significant values, indicating the possibility that declining enrollments, low tax base, aging facilities, and other variables can potentially account for a positive correlation between FTE and planned improvements. In both growing and declining districts, needs may be assumed to continue.

A moderately high value of .6333 was found when correlating wealth to planned improvements. Factors which may contribute to positive association in high wealth districts would indicate that the ability to spend more for improved and added facilities may lead to increased expenditures. Inversely, the inability to spend higher amounts because of low tax yield and priorities for scarce resources may lead to reduced expenditures.

The coefficient of .5980 between age and condition of facilities is not surprising and is supported in other research in Kansas (Burk, 1987; Honeyman and Stewart, 1985; Devin, 1985). While no causation is presumed, other research has utilized regression techniques to predict group membership among districts where expressed needs are high. The correlation value found in this research supports a positive and significant association between age and condition.

Correlating FTE to level of bonded indebtedness yielded a .38 coefficient. Under similar reasoning, growing districts face a continual need to expand, while stable or declining districts must maintain and improve facilities. Where a third relationship of wealth is added, the potential significance for explanation is increased.

A coefficient of .3034 was found when correlating wealth and bonded indebtedness. It is known that the ability to bond for improvements and construction is a direct function of wealth. Where a positive relationship between wealth and debt exists, questions regarding the effect of low wealth and high debt arise.

A coefficient of .2641 was found between planned improvements and level of bonded indebtedness. Questions arising include the extent to which debt may affect decisions for planned improvements and the extent of deferral that arises as a result of higher debt and district wealth.

Variables showing a significant negative correlation were also found. Understandably, a significant negative correlation between wealth and state aid was found in a coefficient of -.1954.

Other variables also showed slight relationship but were below the required .05 level of significance. The nonsignificant values are shown in Table 4.10.

Summary

The findings suggest that Kansas school districts are confronted with facility finance issues deserving consideration. The data offer a view of schools in Kansas which describes a need of significant proportion. The age and condition of facilities suggest continued and increasing maintenance and replacement costs, and the condition of facilities indicates the increasing age of many buildings. To maintain excellence in rural education is a pressing problem, and the expansion faced by many urban districts similarly results in serious considerations for facility finance.

The profile suggests that Kansas districts will continue to face obvious facility needs and continued facility inequalities. The evidence also suggests that a considerable degree of variation exists in local ability to fund capital improvement projects. The correlations found among the most significant variables suggest that plans for improvements are being affected by various fiscal constraints, a principal one of which increasingly suggests that wealthier school districts tend to have better facilities than do poorer systems simply because they are better able to spend in greater amounts.

Conclusions

This study contains implications for the state of Kansas and for its urban and rural communities. The evidence presented suggests that Kansas school districts face at least several conditions from which inferences and conclusions can be drawn about capital outlay financing.

1. A clear conclusion is that Kansas school districts are significantly affected by methods for financing school buildings. The importance of methods of funding capital outlay cannot be denied when over 80 percent of districts levy for capital outlay and where school systems also levy substantially for debt service.

2. A second conclusion is that neither rural nor urban school districts monopolize a distinct advantage in facility funding. Depending on the issue, advantages and disadvantages can be found which relate to either rural or urban schools. Since no school district receives assistance from the state, any advantage or disadvantage is strictly related to district wealth. While urban districts have an advantage in accessing a larger and more diverse tax base, the sufficiency of the resource base is critical because revenue in urban settings is limited by finite resources for which proportionately more tax supported institutions compete. While urban districts do in fact have a broader tax base, they serve larger populations of students and levy nearly twice as much for debt retirement as do their rural counterparts. At the same time as urban districts are serving increasing general populations, they are expected to accomodate a growing number of students who are often commensurately more expensive to educate.

Rural schools are likewise uniquely affected by capital outlay and facility finance. Generally experiencing stable or declining enrollments with few exceptions, rural districts in Kansas rely primarily on agriculture or other singular industries for property tax support. Dependency on narrow tax bases creates severe problems for communities because the health of the local economy generally dictates outcomes of educational expansion efforts. Certainly the effect of the energy and agricultural economies has been a significant contributor to local decisions regarding aggressive programs for facility maintenance, expansion, and new construction. While urban communities in the state are affected by the state's agricultural and energy dependency, rural school districts are the first to encounter the effects of a decline in economic prosperity.

3. Although the data indicate that urban communities are exerting more tax effort than rural schools, rural districts are levying substantially for capital outlay and debt retirement. The narrow tax base in most rural communities is frequently under stress because, although average levy rates are lower, the proportion to the total tax effort may be equal or greater. Because rural districts are frequently among those which receive no general fund state aid because of high wealth, there is an assumption that rural areas are

wealthier than urban areas. Reality suggests the inaccuracy of that assumption because rural areas represent both extremes of wealth and insufficiency.

4. A fourth conclusion is that while rural and urban districts have different circumstances, their problems are similar. The problems are simply differing effects of enrollment, condition of facilities, sufficiency of tax base, and the need to continually improve the educational program. Urban districts face enrollment growth, intergovernmental competition, and aging facilities. Their rural counterparts face narrowness of tax base, aging buildings, and increasingly fewer students resulting in proportionally higher cost. Urban districts strive to provide high quality education under increasing public demand for economy of scale, while rural districts face difficulty maintaining high standards by convincing the public of the appropriateness of program growth and higher per unit costs. The problem is especially compounded for both urban and rural districts when there is a corresponding need to close or curtail use of buildings in 21 percent of the state's school districts. Rural districts must face declining enrollments and school closings, while urban districts have difficulty explaining the need to close buildings while simultaneously building new attendance centers. In all instances it appears to be increasingly difficult to convince communities to invest higher amounts in education when the public questions the wisdom of current expenditures and demands a visible return on their educational investment.

5. A fifth conclusion is the size of the problem in Kansas. The age and condition of buildings throughout the state indicate a growing problem districts will experience. The concern is even more evident when nearly 20 percent of buildings exceed 50 years of age and the physical condition of buildings is described as fair or poor in nearly 22 percent of the state's facilities. With 80 percent of districts levying for capital outlay and over half the districts levying for debt retirement, the evidence indicates that there are significant needs in school districts for repair, maintenance, and replacement of facilities. Plans for improvement and expressed unmet needs suggest a continuance of these activities despite a generally lackluster economic climate and wide variations in local tax ability. Unfortunately, unfavorable economic conditions tend to aggravate the situation by accelerating maintenance and improvement deferral.

6. A sixth conclusion is that tax rates, health of the local economy, and adequacy of tax base determine the ability to bond for construction in Kansas. The data indicates that a substantial proportion of rural and urban communities are spending below the group average for capital outlay. The expenditure levels stand in conflict with the needs expressed by districts for increased spending, leading to a belief that districts need to spend more than they can presently afford.

7. A seventh conclusion states there is now documented evidence that school districts in Kansas have varying levels of ability to pay for facilities, and the variation remains when the extremes are removed. A recognition of the existence of wealth variations has been addressed in the SDEA, but capital outlay remains outside the equalization act.

8. An eighth conclusion can be drawn from the correlations. In addition to the correlations which indicate a positive relationship between local needs, facilities, and wealth, there is evidence that a majority of Kansas districts are unable to fund either the mean ability level or the mean expenditure level in the state. The inability to fund the average expenditure level is different from choosing not to fund it and raises the same questions regarding how equal opportunity can be available when a large majority of districts represent insufficient ability to fund an established state average expenditure. In the general philosophy of the courts, equity has focused on ability more than practice.

9. A final conclusion addresses the most important aspect of the examination of facility finance and states that the impact of facilities on educational programs must be a central concern in the assessment of equity. While equity is an elusive term, the definition of equity in this monograph proposes students should have access to resources which meet their individual needs regardless of location of residence in a state, and taxpayers have a right to expect the state to support education.

Recommendations

It is incumbent upon investigators to offer recommendations which logically flow from research efforts.

We recommend that Kansas adopt a mechanism for granting aid to local school districts to assist in capital outlay funding including facility construction and maintenance. The issues we have examined suggest that there is strong

evidence that court activity surrounding facility finance will increase in both directness and intensity.

We also recommend that Kansas adopt an aid mechanism consistent with the principles of equalization found in the general aid formulas now operational in many states including Kansas. Equalization principles provide a secure basis for court approval by adhering to the guidelines found in Serrano. It is further appropriate for the State of Kansas to include an equalization scheme consistent with the School District Equalization Act (SDEA). The SDEA is a logical vehicle for inclusion of aid to capital outlay since formulas for calculation of general state aid to local school districts could be adapted easily for capital improvement finance aid.

We further recommend that several critical features should become an integral part of any plan to assist facility finance in Kansas. These features would provide for the inclusion of most districts through increased levels of funding, and would address concerns about local effects inherent in any change. These features would require the state of Kansas to build in provisions which allow for a high level of state participation, consider current local effort for facility financing, provide for continued local incentive and local control, provide funding for existing debt reduction, and consider variables such as special needs, enrollment growth, sparsity, and emergencies.

We further recommend that the State of Kansas standardize a process to include a statewide project list which prioritizes needs and identifies cost projections, thereby maximizing the utility of project identification and fiscal constraints. This allows for joining state revenue projections with anticipated facility needs well in advance of actual project scheduling and fiscal emcumbrances. A project approval list provides the state with an orderly plan by which local and state partnerships may be scheduled.

Finally we recommend that the state should establish two operational funds for assistance to local school districts. The first fund should tie directly to the immediate needs for school districts which are experiencing difficulties. Difficulties may be related to the inability to pass a bond issue, to substandard facilities or to facilities which fail to meet criteria for accessibility or other such features. A corollary fund should also be established which systematically addresses long-range plans and capital improvement needs in school districts. Where a large number of districts are unable to fund an average expenditure and where large numbers of districts express

unmet needs as in Kansas, the need to establish state funding is present. As a part of the recommendation, it should be noted that the critical needs fund and the long-range fund should appropriate substantial dollars to assist local districts.

Many additional recommendations can be conceived, but we suggest that the recommendations made in this monograph represent a realistic beginning to guide development of future state action. As plans are developed, recommendations will be modified and outcomes altered in light of new information and fiscal restraints.

Finally, in recommending that the State adopt a mechanism for aiding local school districts in funding facility concerns, we recognize the enormity of the task. But we are similarly aware that there is a potential for state liability if court trends develop as the indicators suggest. Research has identified a substantial estimate of deferred needs and the effect of failed bond elections. New data increases the total dollar amount on a daily basis. We are also aware that the task of describing needs is large. We believe, however, that the state is well advised to explore the issue rationally in preparation for a potentiality which appears to hold promise.

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RURAL AND SMALL SCHOOLS RESEARCH

A survey of Kansas school systems less than 1,000 students. This included 223 of the state's 304 districts.

Objective: to identify variables which influence a districts' ability to generate funds to finance maintenance work on buildings.

RESULTS

The backlog of maintenance approached $60 million. Deficit areas:

Roof repair
HVAC
Window/energy replacement and modernization
Generally "needed renovation and modernization."

The data were correlated with 14 fiscal variables such as debt service, outstanding debt, district wealth, and taxable income.

Significant correlation coefficients were found for:

level of *outstanding debt*: r= 0.63

size of *capital outlay budget*: r= 0.21

interest *transfers*: r= 0.23

level of debt service: r= 0.50

Multiple regression analysis concluded that level of outstanding debt was the single best predictor of condition of facilities where approximately 37% of variance was explained.

David S. Honeyman and G. Kent Stewart. "Capital Fund Mechanisms and the Condition of Rural and Small Schools." Research in Rural Education, vol. 3, no. 2, Winter 1985.

LARGER DISTRICT RESEARCH IN KANSAS

Similar results were found for districts exceeding 1,000 enrollment.

Devin studied 81 of the state's districts with similar objectives:

--identify the dollar value of deferred projects.

--identify the nature of deferred projects.

--determine the degree of association between selected variables and deferred maintenance.

RESULTS

The results found a backlog of $321 million.
Major needs were reported as:

Roofs- $16 million New construction- $241 million

HVAC- $13.3 million Driveways and parking- $5.2 million

Devin explored major causes of backlog:

Building age= 78.1% energy costs= 15.3%

health and safety= 75.3% tax limitations= 72.6%

technological/curricular= 68.6% population changes= 56.2%

Pearson correlation coefficients noted positive associations:

condition and level of state aid: r= 0.29

condition and debt service: r= 0.39

A negative correlation was found between wealth and condition:

r= -0.59

Devin concluded that districts receiving higher state aid levels are also the districts exhibiting the greatest facility needs, noting the relationship between wealth and physical facility condition.

Mary E. Devin. "Deferred Repair and Renovation in Selected Kansas Public Schools." (Ed.D dissertation, Kansas State University, 1985).

RANDOM SAMPLE RESEARCH IN KANSAS

Burk examined factors believed to directly influence facility conditions in a random sample of 140 Kansas districts. Variables were selected and analyzed against levels of deferred maintenance.

RESULTS

Significant relationships were observed:

Deferred maintenance and assessed valuation:	r= 0.58
Deferred maintenance and taxable income:	r= 0.72
Deferred maintenance and enrollment:	r= 0.63
Deferred maintenance and general tax rate:	r= 0.19

Multiple linear regression also yielded suspect relationships.

Adjusted assessed valuation, taxable income, and enrollment were found to contribute 62.18% of explained variance, with taxable income as the single best predictor, accounting for 51.63% of observed variance.

Ron E. Burk. "Financial Factors Influencing Selected Kansas School Districts' Ability to Finance Facility Maintenance." (Ed.D dissertation, Kansas State University, 1987).

NATIONAL RESEARCH INTEREST

Recent research at the national level parallels and supports the data found in states.

A national study of rural and small schools involving researchers from Kansas State University, Purdue University, and Lehigh University was jointly sponsored by:

National Rural Education Association
Kansas State University Center for Extended Studies
Kansas State University Center for Rural and Small Schools
Kansas State University Bureau of General Research.

RESULTS

A survey of 1700 school districts of <800 students was conducted. Power analysis required a minimum response of 230 usable surveys with a response rate of 263 returns utilized.

Data was collected on two dimensions: District and Building.

A replacement cost index (RCI) was hypothesized and checked against a series of data derived from the survey using correlation techniques and regression analysis.

The data indicated that the average deferred maintenance approached $300,000 per building and over one-half of the districts reported buildings that were considered inadequate.

The data suggest that the cost of deferred maintenance in rural schools is $2.6 billion, with replacement cost over $18 billion for the more than 50% of buildings experiencing problems.

Significant relationships were found for:

RCI and maintenance:	r= 0.169
RCI and Level of debt service:	r= 0.155
RCI and Use of bonding mechanism:	r= 0.203
RCI and Local Sources:	r= -0.12

TABLE 1
Variables Used in the Study Reported by District

Variable	Mean	Standard Error	Sum	Minimum	Maximum
	Percentage of General Fund Expended (%)				
Capital Outlay	4.43	4.5		0.0	30
Maintenance	6.18	10.7		0.0	55
Debt Service	3.5	4.43		0.0	25
	Percentage of Contribution to the Capital Fund (%)				
Bonds	48.1	2.38		0.0	100
Transfers	31.5	7.98		0.0	100
Equalize	13.9	1.67		0.0	80
Interest	4.9	.89		0.0	90
Matching	9.4	1.54		0.0	100
Local Sources	45.9	2.25		0.0	100
Loans	5.15	1.3		0.0	100

TABLE 2
VARIABLES USED IN THE STUDY REPORTED BY BUILDING

Variable	Mean	Standard Error	Sum	Minimum	Maximum
Original Yr.	1946	1.07		1886	1985
Original Cost	$732,640	$60,200		$11,200	$12,130,000
Adequacy for Enrollment					
Yes	0.84	.01			
No	0.16	.01			
OSHA (Safety)					
Yes	0.93	.01			
No	0.07	.01			
Handicapped Access					
Yes	0.66	.02			
No	0.34	.02			
Deferred Maintenance	$ 297,670	$107,000	$96,453,602	0.0	$3,300,462
Replacement Cost	$2,825,137	$161,900	$1,279,787,443	$100,000	$4,895,000
Sum of Improvements to Date	$1,013,655	$66,783	$449,049,512	0.0	$13,980,992
RCI Index	.38	.01		0.001	1.36

These data indicate that:

--Districts spending more on maintenance had access to bond revenues, had higher debt capacity, had higher RCI values, and buildings in better condition.

--The negative relationship indicated lower values of RCI were related to higher utilization of a local ability to fund capital outlay.

--Districts capable of bonding support higher levels of debt and maintenance, and a higher RCI and lower local use of funds than do districts with lower bonding capacity.

The multiple regression analysis was calculated using those variables believed to predict RCI.

The use of bond was the best single predictor variable with a correlation coefficient of 0.33

STATE INVOLVEMENT IN CAPITAL OUTLAY FINANCING: POLICY IMPLICATIONS FOR THE FUTURE

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Table 4.1

DESCRIPTIVE DATA

	Rural	Urban	Statewide
N of districts	220	84	304
FTE	96,911.7	299,473.3	396,385.0
Elementaries	360	573	892
Middle/junior highs	90	126	209
High schools	246	115	356
K-8-4	115	14	128
K-6-6	51	3	54
K-12	5	0	5
Other	53	62	115

N = 304

Rural = FTE ≤1,000

File no._____

Table 4.2

AGE OF BUILDINGS

Age	Rural	Urban	Statewide
0-10 years	56	75	131
10-20	97	90	187
20-50	335	361	696
+50	153	100	253

N = 298 districts responding

Table 4.3

CONDITION OF BUILDINGS

Condition	Rural	Urban	Statewide
New (age 1-5)	35	32	67
Good	411	489	696
Fair	151	58	209
Poor	51	15	66

N = 298 responding districts

Table 4.4

FINANCIAL DATA ON KANSAS USDs

Total assessed valuation for the state	$11,201,043,673
Total General Fund budgets	1,288,503,382
Total state aid in dollars	435,209,307
N no aid districts in the state	37
Highest percent state aid to a district	80%
Highest General Fund mill rate	91.33
Lowest General Fund mill rate	6.13
Median General Fund mill rate	51.33

	Rural	Urban	Statewide
Mean percent aid	33.8	40.0	35.6
AV per pupil	$51,354.20	$24,826.20	$44,025.40
Mean General Fund mills	49.6	57.6	51.8

N = 304

Table 4.6

CAPITAL OUTLAY DATA

	Rural	% Pop	Urban	% Pop	State-wide	% Pop
N levying for capital outlay	171	77.7	73	86.9	244	80.3
N levying for bonded indebtedness	106	48.2	57	67.9	163	53.6
Revenue per 4 mills for capital outlay	$205.40	--	$99.30	--	$176.10	--
Mean levy by group for capital outlay	2.8	--	2.9	--	2.9	--
Mean levy by group for B & I	3.4	--	6.3	--	4.5	--

N = 304

Table 4.7

BONDED INDEBTEDNESS AND CAPITAL OUTLAY PLANS

Total bonded indebtedness	$384,875,687
N of no-debt districts	129
Percent of no-debt districts in the total distribution	42.5%
N of districts planning capital outlay projects in FY 1986-87	47.3%
N of districts planning bond elections in FY 1986-87	20.0%
N of districts with bond election failure in the last 5 years	10.0%
N of districts planning to close facilities or curtail use	21.2%

N = 298 responding districts

Table 4.8

DISTRIBUTION, CENTRAL TENDENCY, AND VARIATION

Measure	Rural	Urban	Statewide
Raw Range of Ability	$2380.80 12.50	$854.90 36.80	$2380.80 12.50
Restricted Range of Ability	$477.20	$101.70	$455.60
Federal Range Ratio of Ability	9.5	3.6	9.6
Restricted Range of Mean Ability	$420.30	$157.80	$454.70
N of districts below Restricted Mean of Ability	128	77	291

N = 304

1. Type of tax base and planned improvements.
2. Type of tax base and percent of general state aid.
3. Type of tax base and expressed needs.
4. Type of tax base and debt level.
5. Type of tax base and condition of facilities.
6. Type of tax base and general fund mill rate.
7. Wealth and planned improvements.
8. Wealth and percent of general state aid.
9. Wealth and expressed needs.
10. Wealth and debt level.
11. Wealth and condition of facilities
12. Wealth and capital outlay ability.
13. FTE and planned improvements.
14. FTE and percent of general state aid.
15. FTE and expressed needs.
16. FTE and debt level.
17. FTE and condition of facilities.
18. FTE and general fund mill rate.
19. Percent of state aid and expressed needs.
20. Percent of state aid and general fund mill rate.
21. Percent of state aid and capital outlay mill rate.
22. Percent of state aid and planned improvements.
23. Percent of state aid and condition of facilities.
24. Planned improvements and debt level.
25. Planned improvements and condition of facilities.
26. Planned improvements and general fund mill rate.
27. Age and percent of general state aid.
28. Age and condition of facilities.
29. Age and planned improvements.
30. Age and expressed needs.
31. Age and debt level.
32. Age and general fund mill rate.

Table 4.9

PEARSON CORRELATION COEFFICIENTS MATRIX OF SIGNIFICANT VALUES

Variable	$ Improv	% Aid	Debt	Con-dition	GF mills	c.o mills	c.o ability	Need
Tax base	.2444	--	.17	.13	.00	--	--	.23
Wealth	.6333	−.1954	.3034	--	--	--	+1.00	−.1424
FTE	.6397	--	.38	--	--	--	--	−.22
% Aid	--	--	--	--	.1197	.0951	--	−.28
$ Improve	--	--	.2641	.10	--	--	--	--
Age	--	--	--	.5980	--	--	--	--

N = 304

p = ⩽.05

Significance = .095

Table 4.10

PEARSON CORRELATION COEFFICIENTS MATRIX OF NONSIGNIFICANT VALUES

Variable	$ Improv	% Aid	Debt	Con-dition	GF mills	c.o mills	c.o ability	Need
Tax base	--	.04	--	--	--	NC	NC	NC
Wealth	--	--	--	.0647	NC	NC	--	--
FTE	--	--	--	.08	.00	NC	NC	NC
% Aid	−.0159	NC	--	.0064	--	--	NC	NC
$ Improve	NC	NC	--	--	.04	NC	NC	NC
Age	.01	NC	−.07	--	.05	NC	NC	NC

N = 304

p = .05

Significance = .095

NC = not calculated or repeated measures or identical intersections.